



# A simple new technique for neo-umbilicoplasty<sup>☆</sup>

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## KEYWORDS

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**Summary** This article describes a new technique for reconstruction of the umbilicus. The technique used simply originated from a few clinical cases in which we were confronted with an absent or destroyed umbilicus. Previously described techniques for neo-umbilicoplasty were unsatisfying or seemed too complex in our hands. We introduce this easy, safe and reproducible technique which in our experience resulted in a very acceptable newly formed umbilicus.

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Reconstruction of a destroyed umbilicus after umbilical herniorrhaphy was first reported by Mc Millan in 1955. Nowadays it can be advocated in cases of congenital absence (bladder exstrophy, gastroschisis, omphalocele, cloacal exstrophy), or after loss due to inflammatory destruction (periumbilical necrotising fasciitis, umbilical sepsis), surgical procedures (umbilical herniorrhaphy, abdominoplasty, laparotomy) or excision for skin cancer.

The surgical technique to reconstruct a totally absent umbilicus can follow two different principles. A number of techniques use a small piece of skin or a pedicled flap of variable size that remains attached to the abdominal fascia to create the basis of the umbilicus for a small tubular structure.<sup>1-5</sup> Sometimes this can be combined with a skin or cartilaginous graft.<sup>6</sup> Other techniques do not rely

on the unpredictable vascularisation from the deeper abdominal wall and use the neighbouring skin from the abdominal wall to create the depression and/or the tubular structure of the umbilicus.<sup>7-14</sup> In addition, secondary healing can be used to create the umbilical bottom.<sup>15</sup>

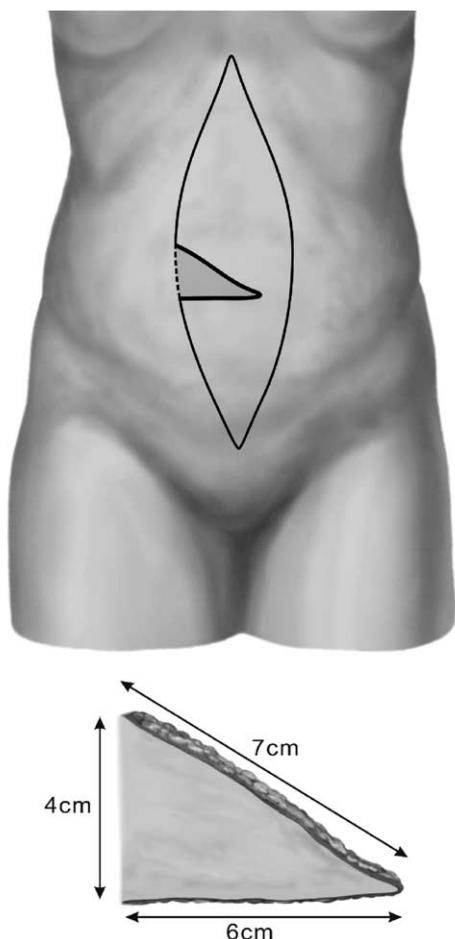
## Surgical technique

A triangular skin flap is designed within the elliptical skin excision over the umbilicus either in a vertical or horizontal direction. One side of the triangular flap is attached to the remaining skin border. This side of the triangle measures about 4 cm while the other two borders measure 7 and 6 cm, respectively (Fig. 1). After wide suprafascial undermining, correction is performed of the rectus diastasis. Over the longest side of the triangle, the flap is folded onto itself (Fig. 2) and sutured upon itself (Fig. 3). The tip of this conical skin structure is then firmly attached to the fascia of the abdominal wall by a 2/0 resorbable suture (Fig. 4). The

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**Figure 1** Flap design.

redundant skin around the neo-umbilicus is resected and skin closure is performed (Fig. 5).

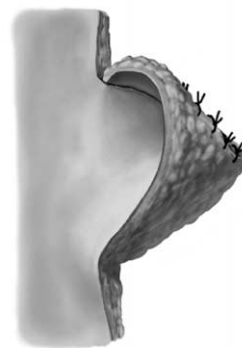
Two clinical cases are shown (Figs. 6 and 7).

## Discussion

The construction of a neo-umbilicus is often



**Figure 2** Folding of flap.



**Figure 3** Suturing the flap upon itself.

required after a previous abdominoplasty. In some techniques of suprapubic skin resection, the umbilicus is not resected but completely detached from the underlying fascia. If a secondary abdominoplasty needs to be performed with further and wider resection of excess of skin, often the umbilicus needs to be resected. In other techniques with circum-umbilical skin resection and purse-string tightening, the remaining umbilicus is extremely deformed and can no longer be used. Often patients consult after a total resection of the umbilicus following hernia surgery or complicated laparotomies. More exceptional indications are bladder exstrophy<sup>10,16</sup> and umbilical hypogenesis.<sup>1,17</sup>

The neo-umbilicus should have a natural morphology, a sufficient and prominent depression and must be created without causing too many additional scars.

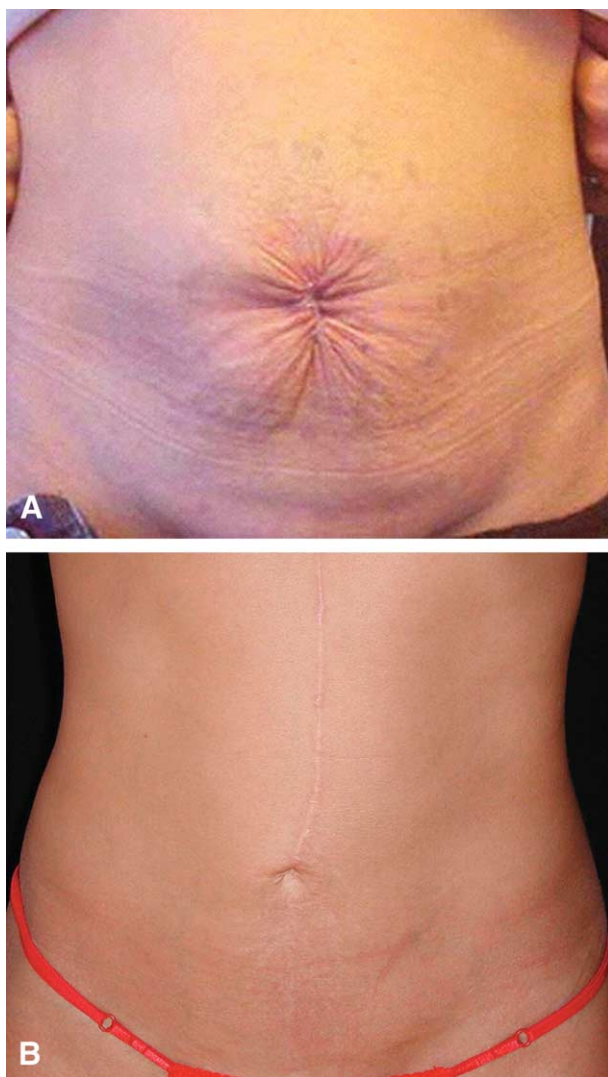
Opinions differ on what a normal umbilicus should look like. Most favour almond or slight T-shaped with the longest axis in the vertical direction.<sup>18</sup> The body morphology of each patient



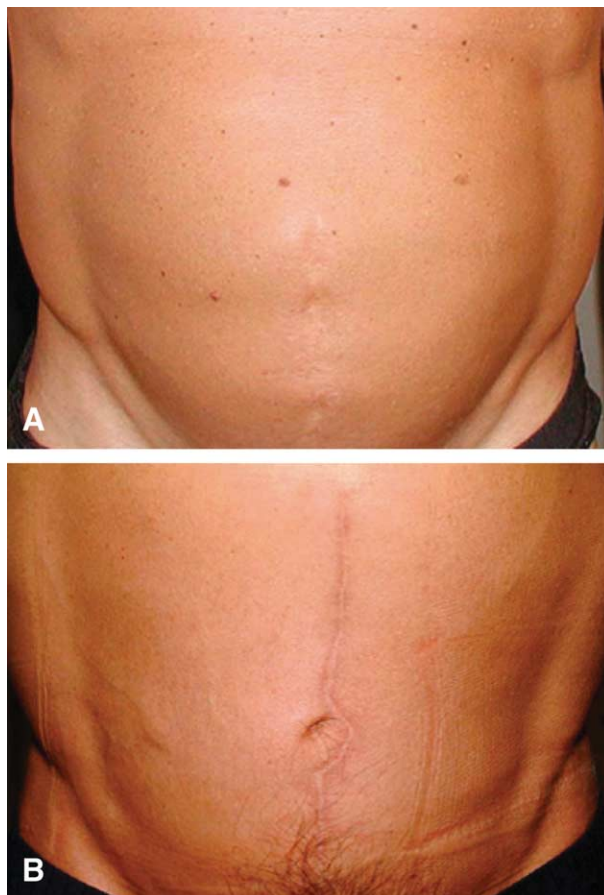
**Figure 4** Suturing the resulting cone to the abdominal wall fascia.



**Figure 5** Abdominal wound closure.



**Figure 6** (a) Case 1, preoperative frontal view. (b) Case 1, postoperative frontal view.



**Figure 7** (a) Case 2, preoperative frontal view. (b) Case 2, postoperative frontal view.

has an important influence. The umbilicus depression usually reaches down to the umbilical fascia. It should be placed about 3 cm above the superior iliac spine or at the highest level of the iliac crest.<sup>19,20</sup> In the majority of cases, a horizontal skin fold is seen in the upper part of the umbilicus creating a small superior hood.<sup>18,21</sup>

Almost all reconstructed umbilici come along with a horizontal or a vertical scar on the skin of the abdominal wall. This is necessary to decrease the amount of skin around the exterior circumference of the umbilicus in order to obtain sufficient depth of the umbilicus. Marconi and later Bartsich have described purse-string methods.<sup>3,22</sup> Although this is a very simple technique, the long term results have not been described. The question is, as with the circumareolar mastopexia, if the circular scar will not stretch and so the umbilicus flatten.

The aim of this simple technique is to create a harmonious umbilicus of adequate size, orientation and depth together with a natural shape. The main advantage of this original shape is that it is simple, reproducible and has very few complications. On the other hand, this umbilicoplasty technique needs

to be combined with either a vertical or horizontal scar over the umbilical position to be able to guarantee sufficient size of the umbilicus. Long term results of over 2 years have confirmed the natural appearance of the neo-umbilicus. We consider this technique as our preference in vertical scar abdominoplasties and umbilical reconstructions.

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